Vetoing incoherent events

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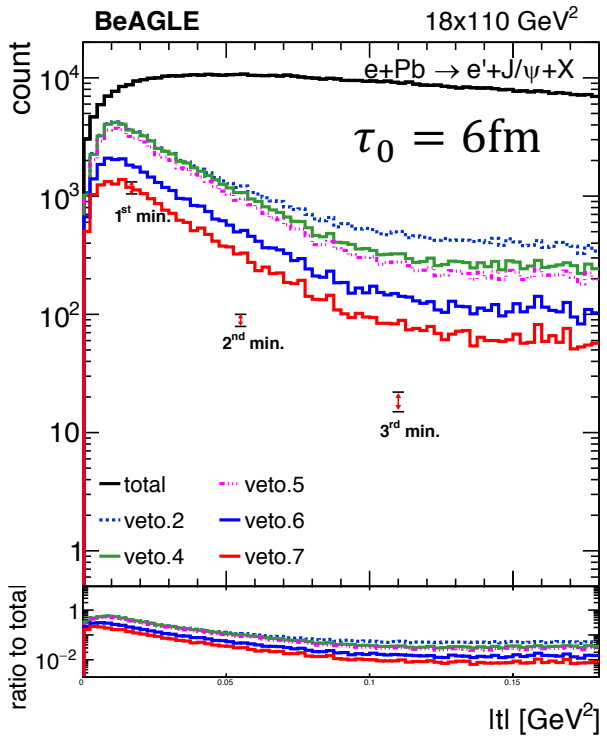
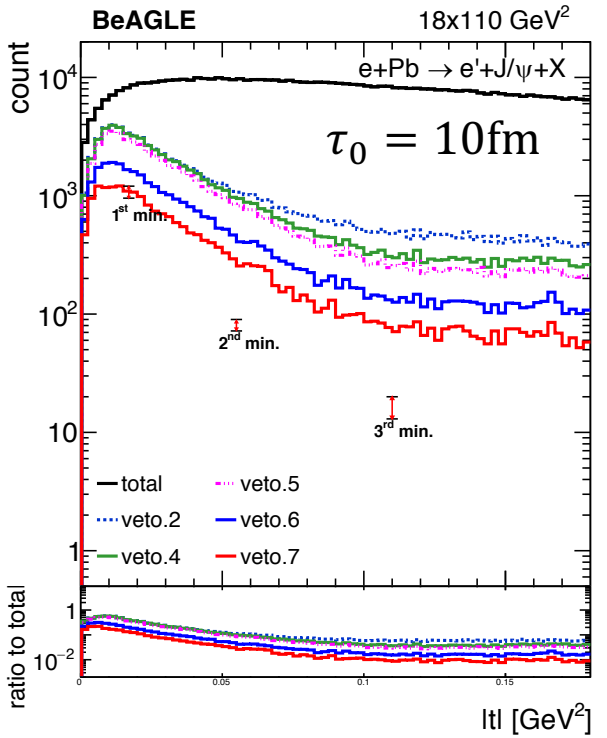
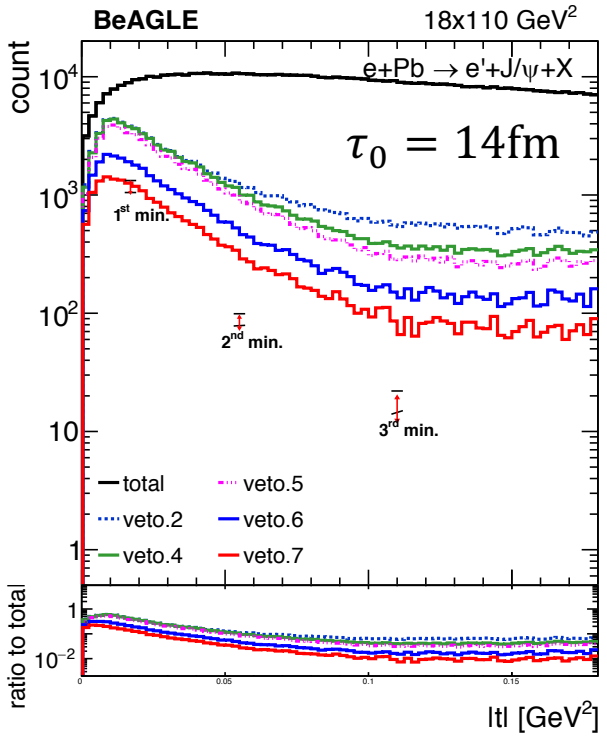
Vetoing power with different τ_0



Survived event count		
Total events	1447541	100%
Veto.1	1259413	87%
Veto.2	129011	8.9%
Veto.3	129011	8.9%
Veto.4	116325	8.04%
Veto.5	84406	5.8%
Veto.6	45542	3.15%
Veto.7	28457	1.966%



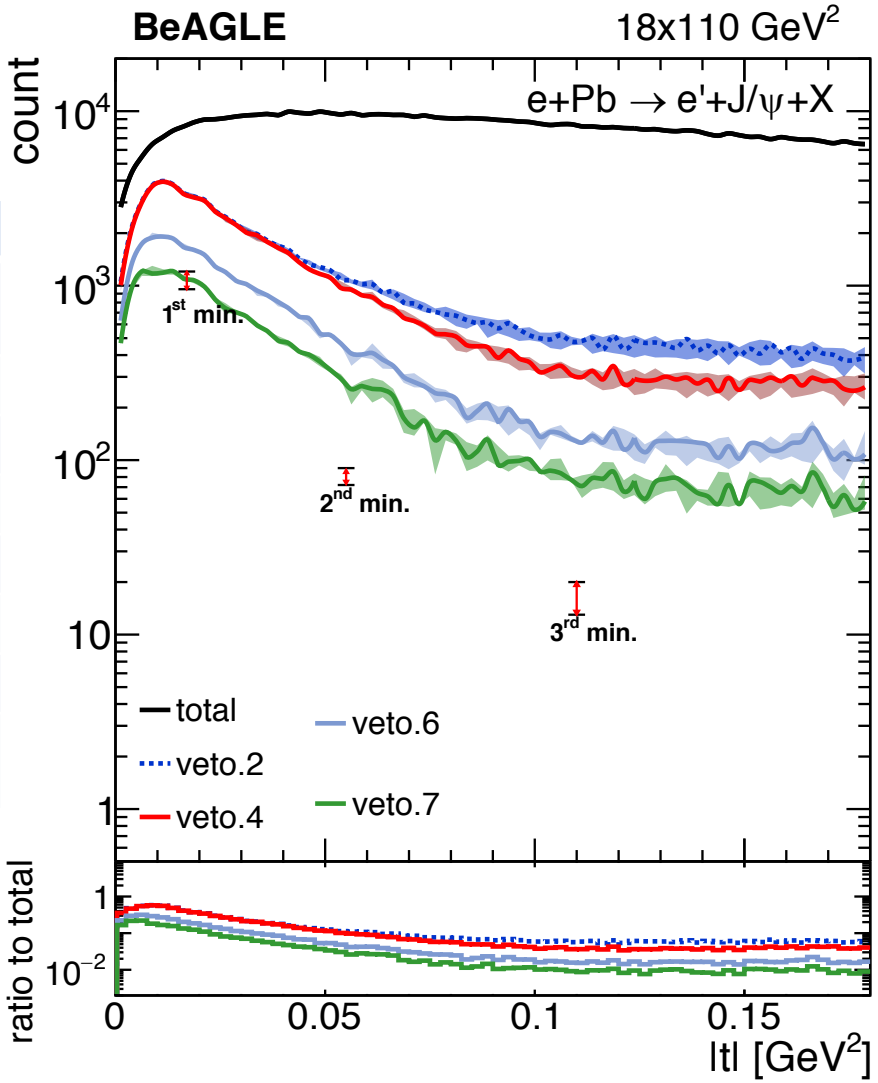
Survived event count		
Total events	1322778	100%
Veto.1	1149549	86.9%
Veto.2	128662	9.73%
Veto.3	128662	9.73%
Veto.4	115500	8.73%
Veto.5	81944	6.2%
Veto.6	43414	3.28%
Veto.7	26950	2.037%



Survived event count		
Total events	1449231	100%
Veto.1	1258919	86.87%
Veto.2	149962	10.348%
Veto.3	149962	10.348%
Veto.4	134329	9.269%
Veto.5	93343	6.441%
Veto.6	49359	3.406%
Veto.7	30636	2.114%

Vetoing Incoherent Events

	ratio	
Events	Old data samples	New data sample
Only neutron(s)	8.1%	7.659%
Only proton(s)	0%	0%
Only photon(s)	7.66%	3.254%
Neutron(s) and proton(s)	3.19%	3.194%
Neutron(s) and photon(s)	40.94%	44.238%
Proton(s) and photon(s)	5.82%	2.265%
Neutron(s), proton(s) and photon(s)	35.03%	39.390%



Veto.1:
- no activities ($|\eta| < 4.0 \& p_T > 100\,\mathrm{MeV/c}$ & $E > 50\,\mathrm{MeV}$) other than e- and J/ψ in the main detector (generator level)

Veto.2:
- veto.1 and no neutron in ZDC;

Veto.3:
- veto.2 and no proton in RP;

Veto.4:
- veto.3 and no proton in OMD;

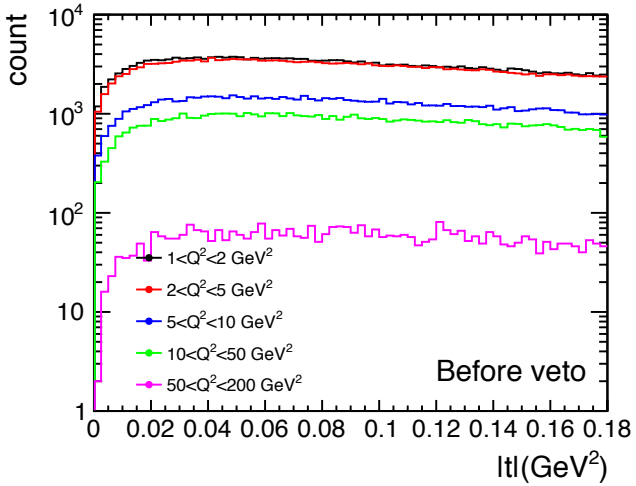
Veto.5:
- Veto.4 and no charge particles in B0

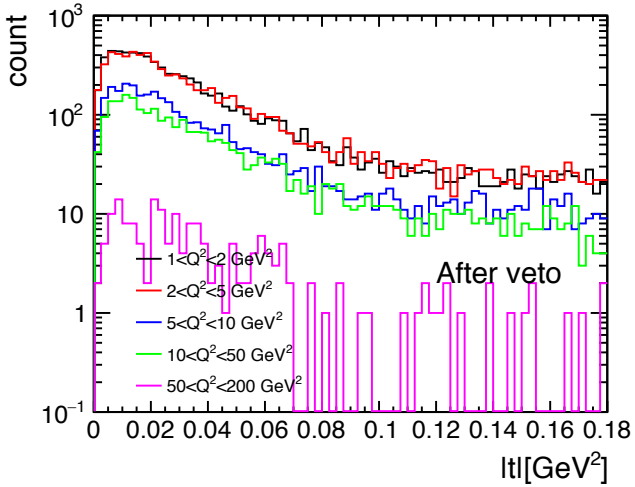
Veto.6:
- Veto.5 and no anything in preshower

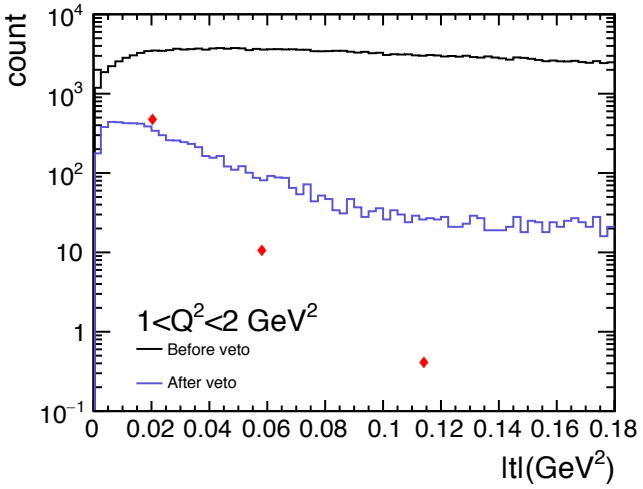
Veto.7:
- Veto.6 and no photon *E>50MeV* in ZDC

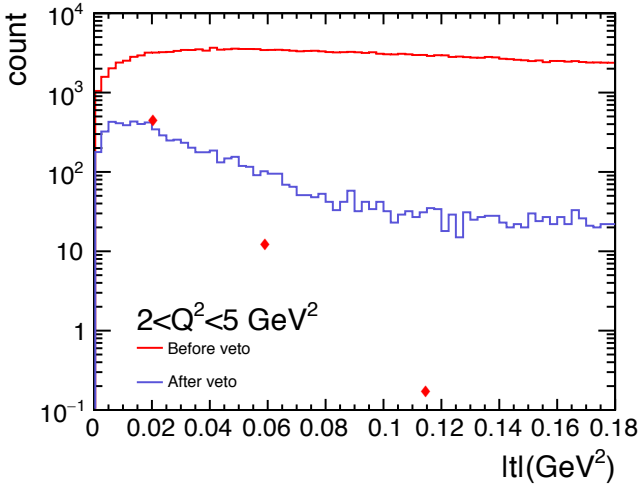
The results with $\tau_0 = 10\mathrm{fm}$ as mean value, the absolute value of the difference with $\tau_0 = 6\mathrm{fm}$ as the low y-errors, and with $\tau_0 = 14\mathrm{fm}$ is the high y-errors.

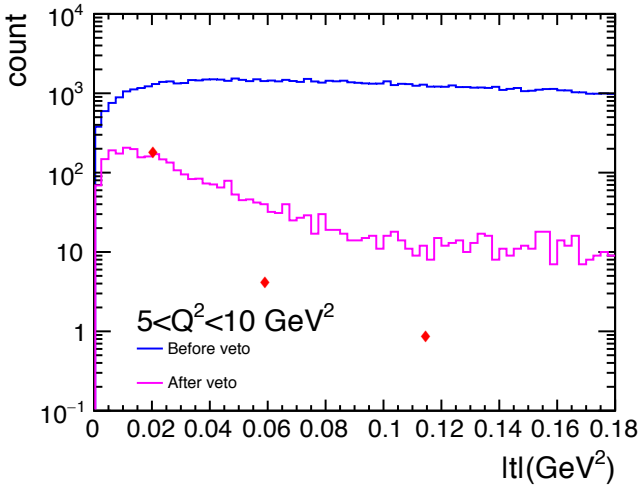
Q2 dependence







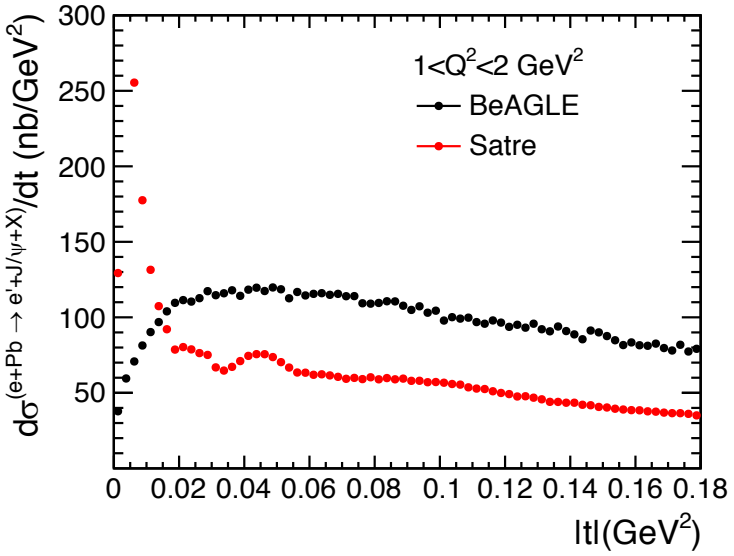


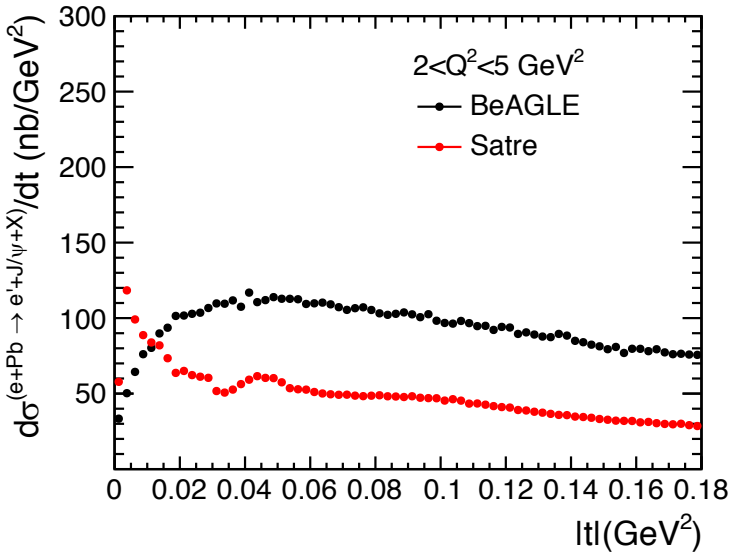


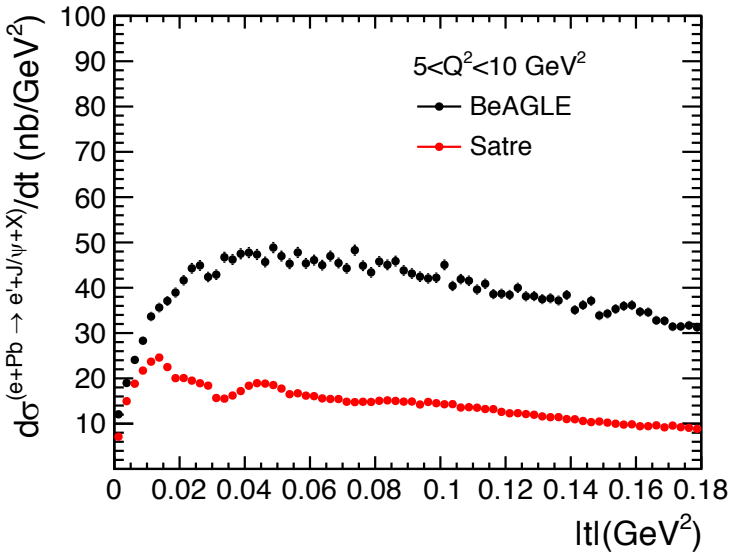
The red diamonds in each plot are calculated by preserve the ratio of incoherent to coherent with the corresponding Q2 bin of the files that Thomas provide.

In different Q2 bins, the vetoing power is almost identical, the curves after veto can just reach the first minima.

Cross section







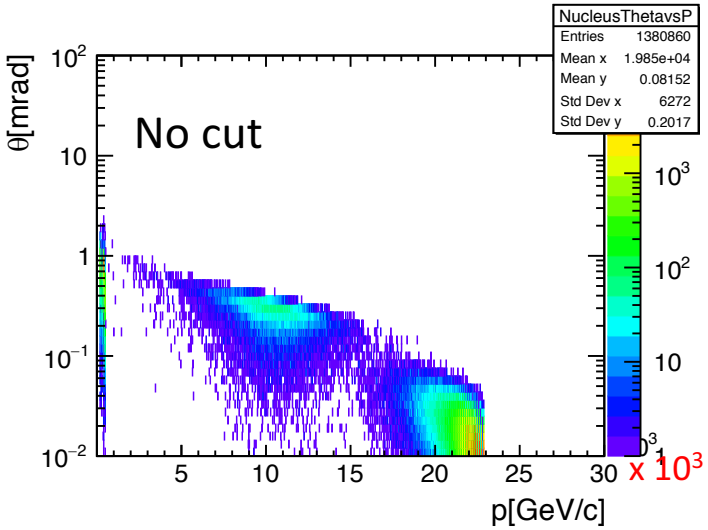
σ_{total} = 3.49 x 10^{-2} microbarn = 34.9 nb

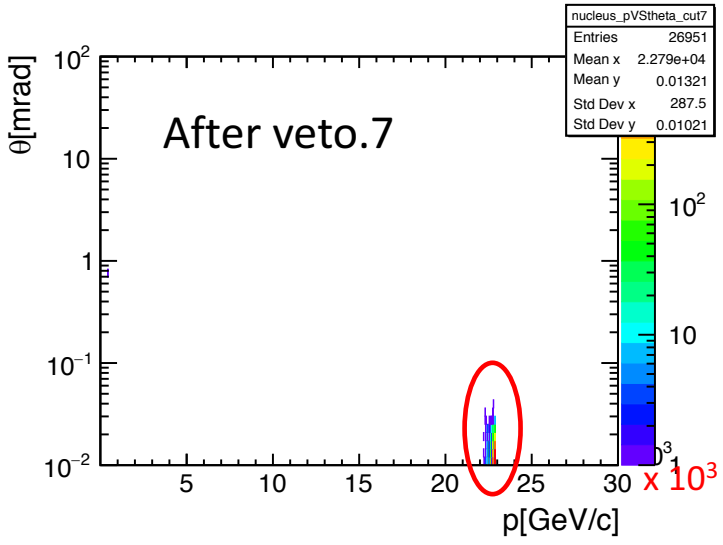
Luminosity = $\frac{N_{total}}{\sigma_{total}}$ /A=$\frac{9.12\times10^{7}}{34.9\ \mathrm{nb}}$/A = 2.6131805 x $10^{6}\ \mathrm{nb}^{-1}$/A (A=208)

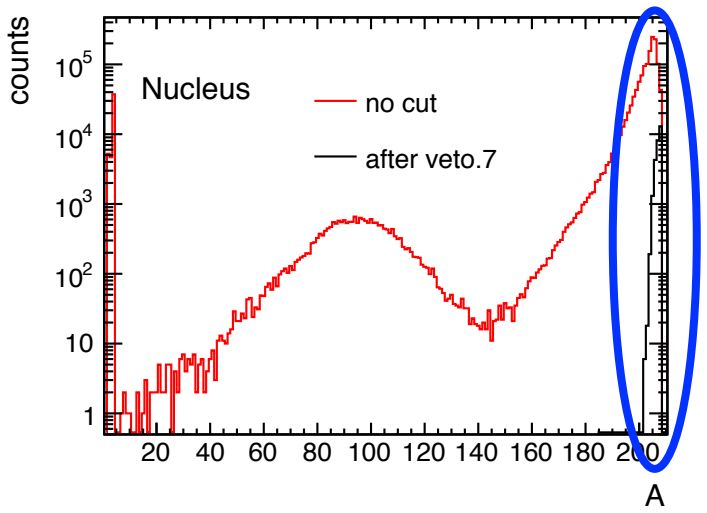
$d\sigma^{(e+Pb\to e'+J/\psi+X)}/dt = \frac{dN^{(e+Pb\to e'+J/\psi+X)}}{Luminosity}$/dt

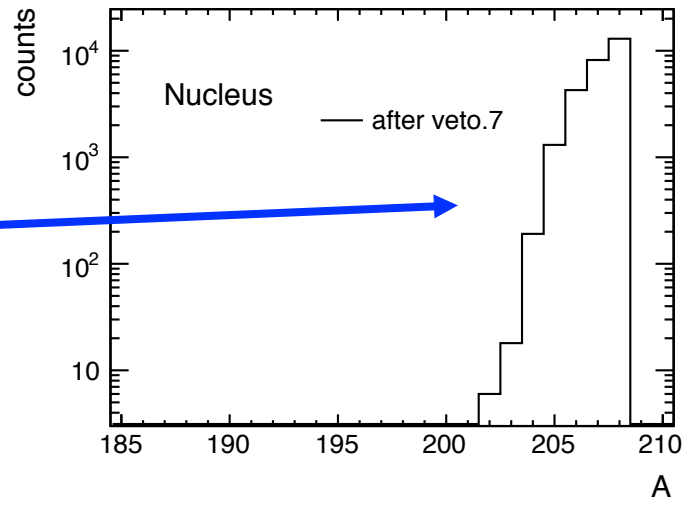
There are significant difference between BeAGLE and *Satre* model???

Nucleus A distribution







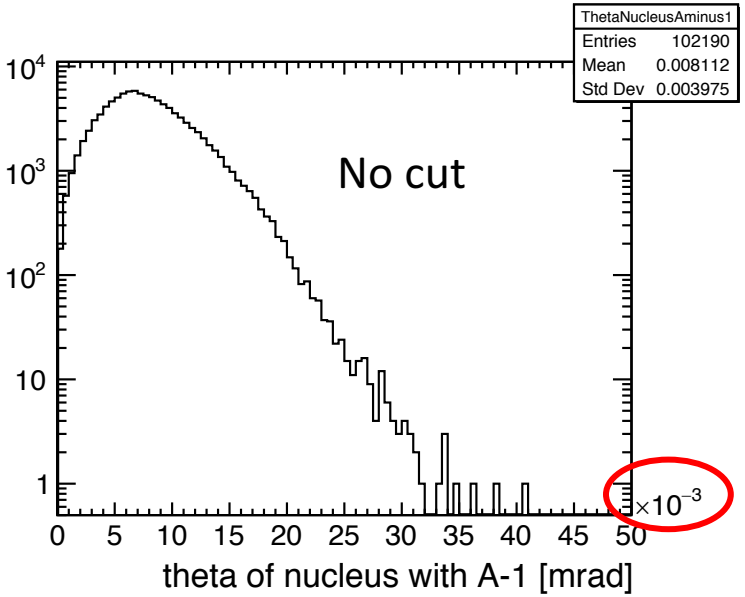


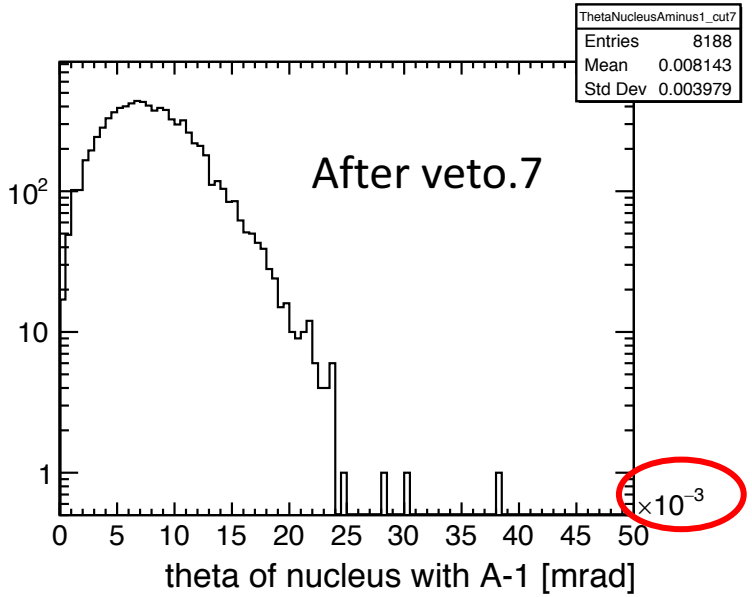
For e+Au, 18x110 GeV^2
Au beam RMS $\Delta\theta$, h/v [μrad] :
218/379

the scattering angle for these nuclei which survive all cuts is between 10^{-2} and 10^{-1} mrad (10 μrad to 100 μrad), so smaller than the divergences. Detecting these nucleus will be extremely difficult if not impossible.

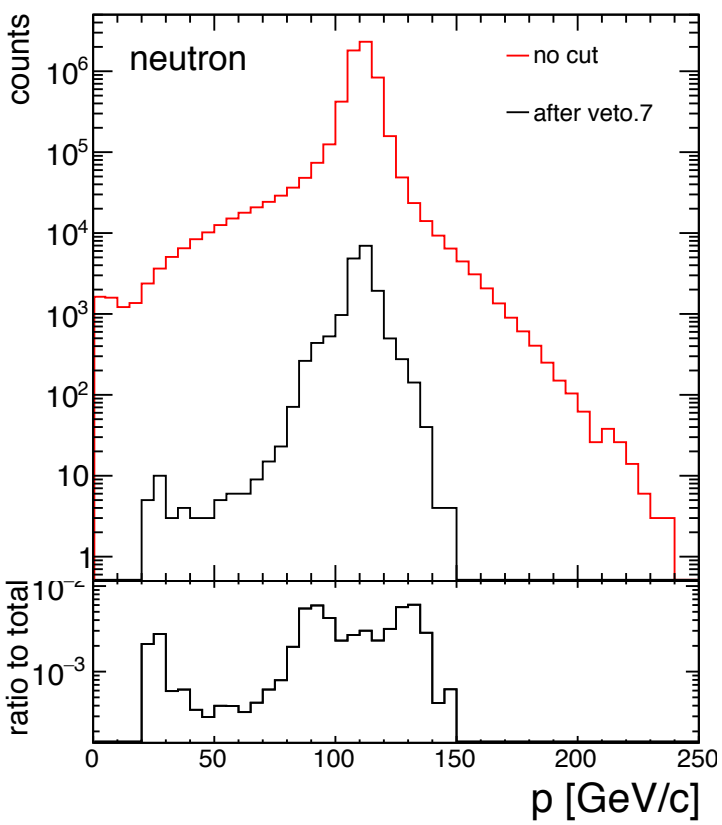
Backup

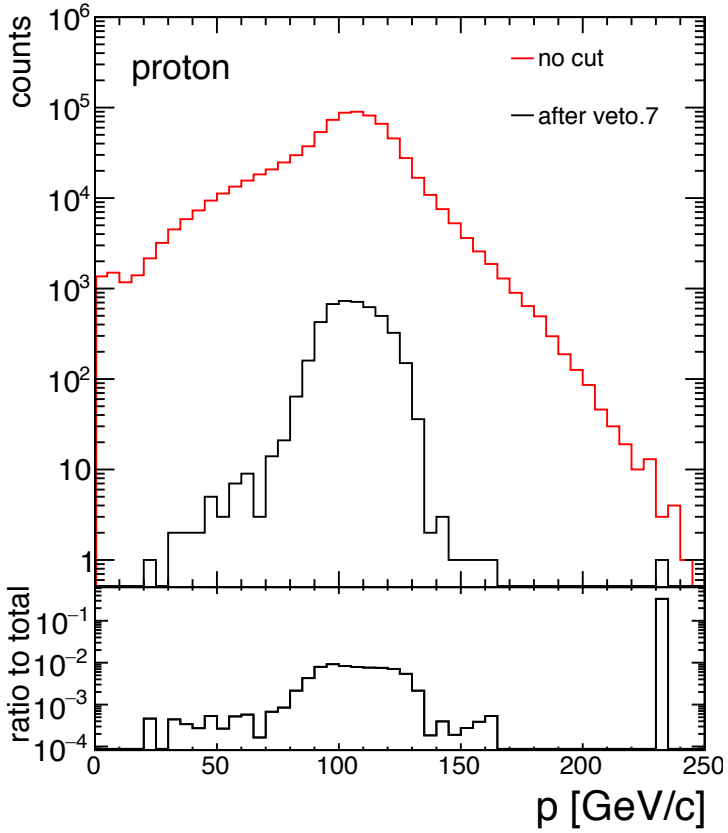
nucleus with proton number is A-1

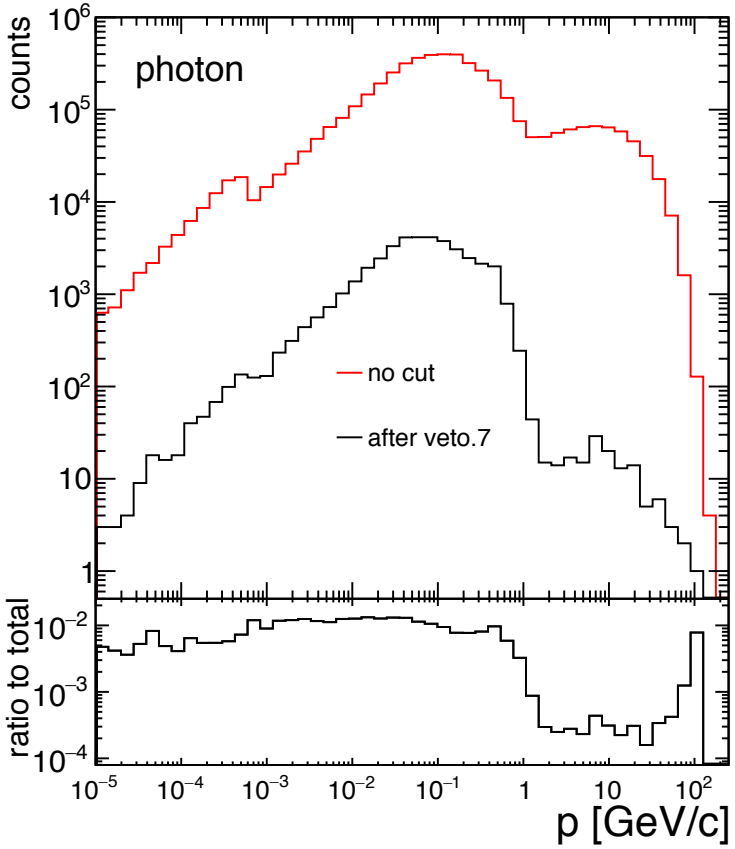




Momentum distribution

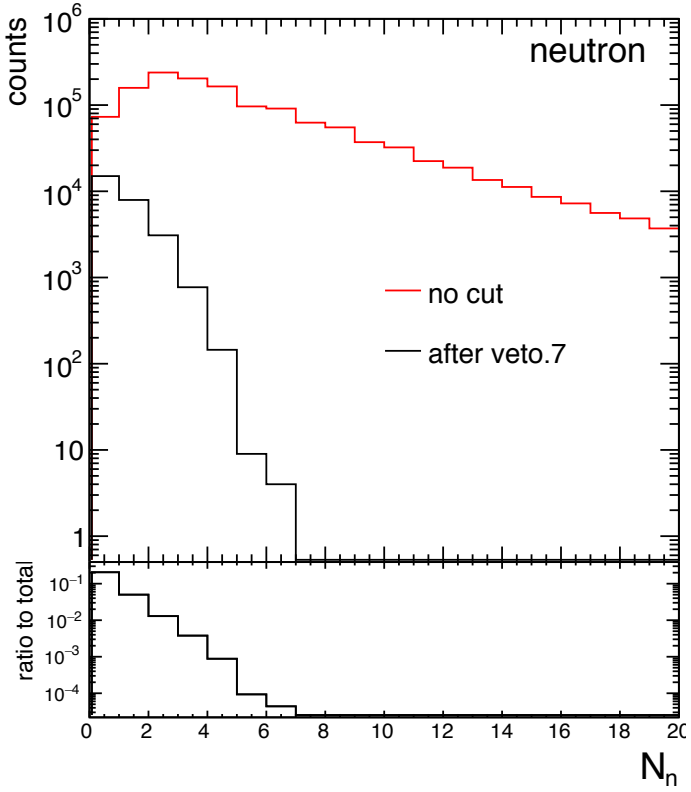


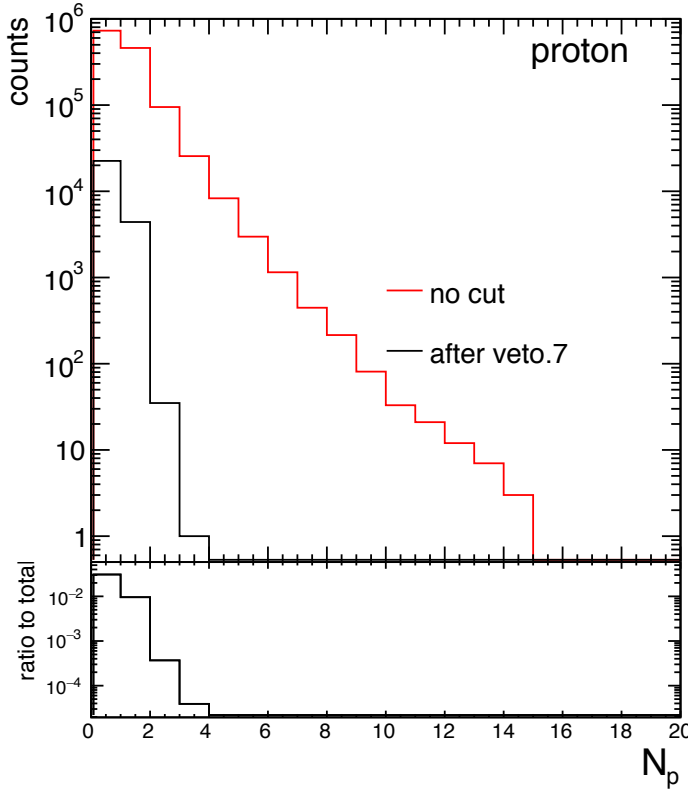


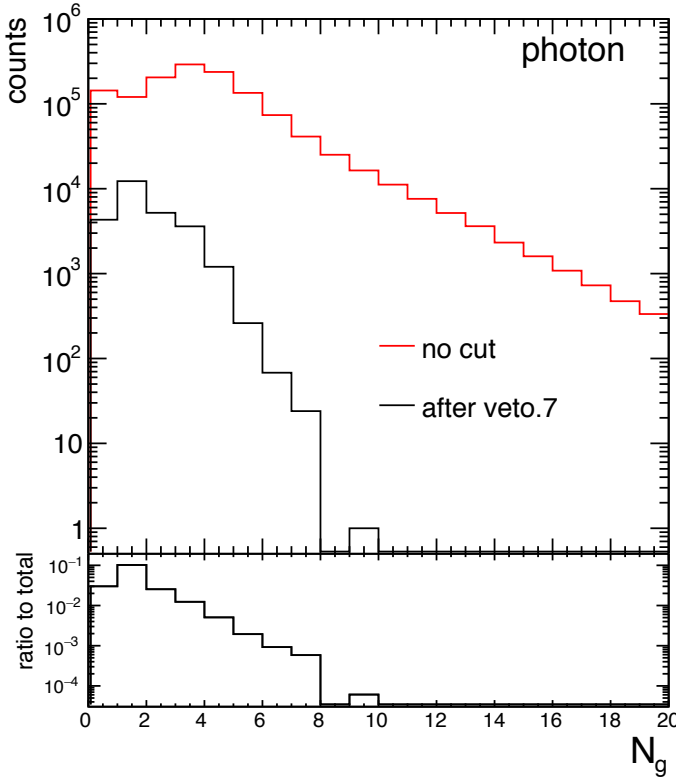


The vetoing efficiency for particles is >99%.

Multiplicity distribution







Multiplicity for non-vetoed events are peaked at lower multiplicity.
Events with more particles, the more likely it can be vetoed.